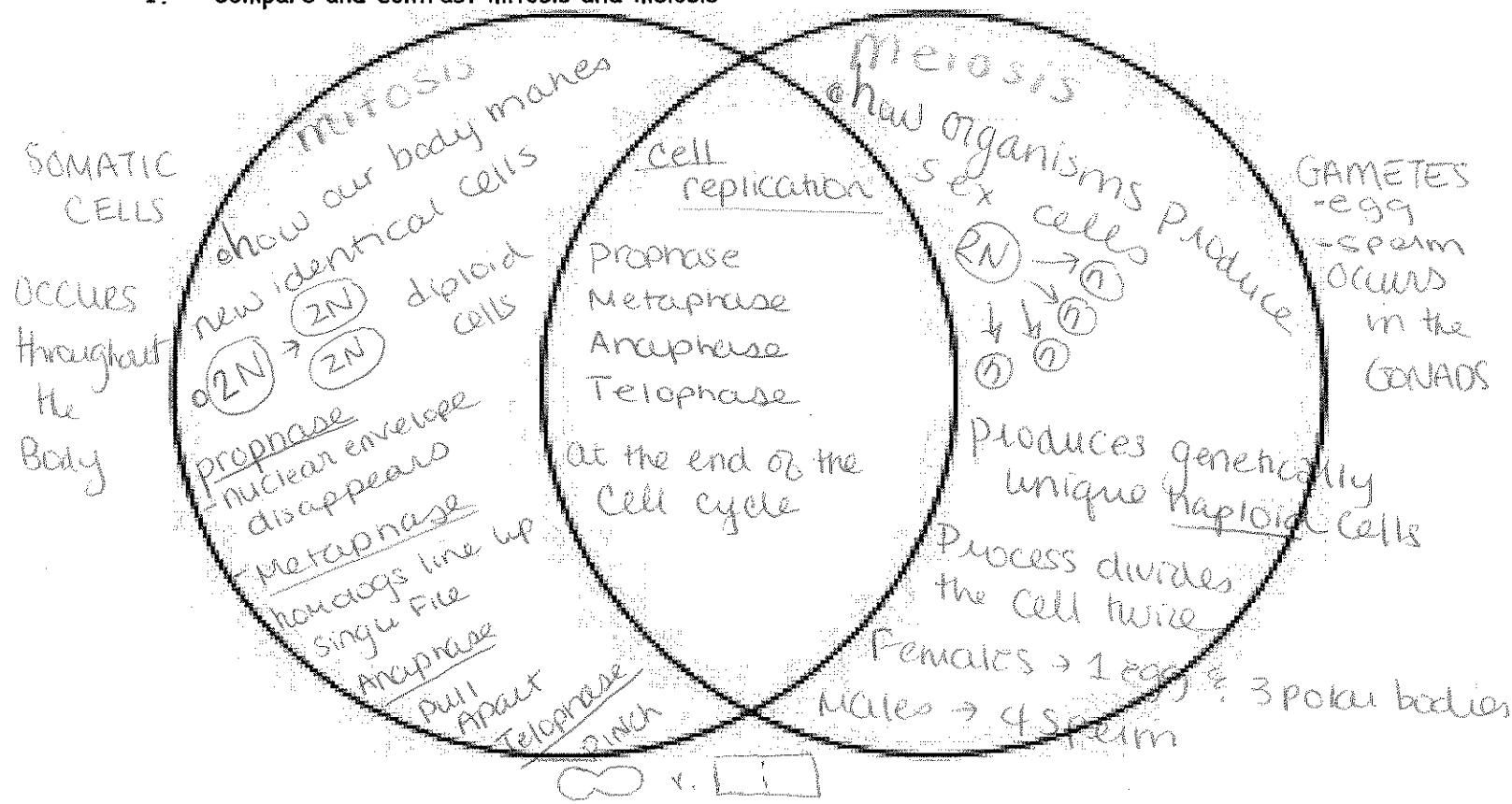
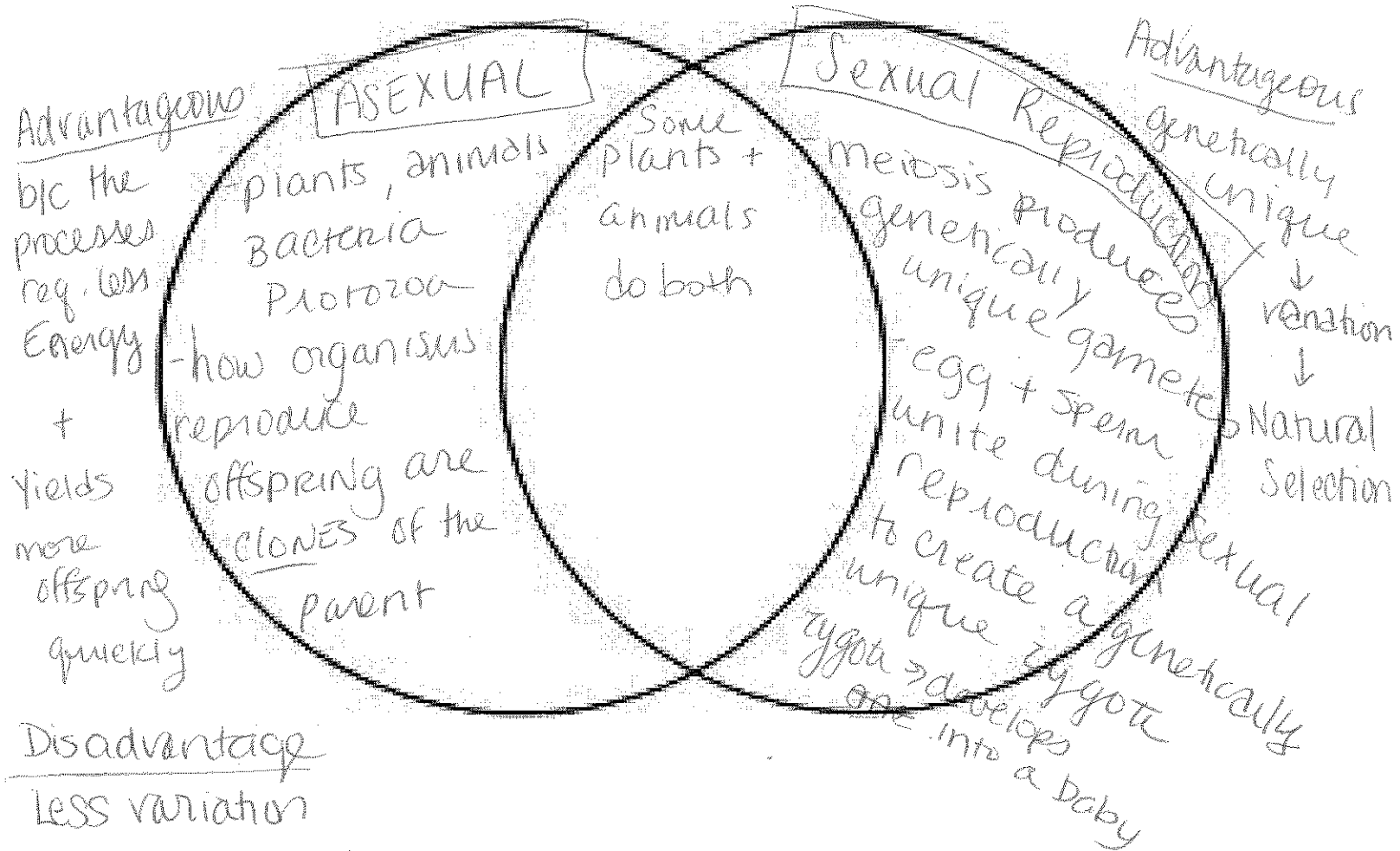
KEY

Extra Review Questions MCAS Biology

1. **Compare and contrast mitosis and meiosis**



2. **Compare and contrast asexual and sexual reproduction**



3. Classify the following organic molecules (protein, carb, nucleic acid, or lipid): DNA, RNA, Helicase, Wax, Sucrose, Starch

Organic Molecules Contrast Foldable Chart

Major Class	Subclass	Examples	Elements or atomic ratios	Identifying Features	Uses in organisms
Carbohydrates	*Monosaccharides*	Glucose	C, H, O	Circles	*Cellular respiration *Quick Energy
	Dissacharides	Sucrose ~~Lactose~~			
	Polysaccharides	Cellulose			
Nucleic Acids	*DNA*		C, H, N, O, P	Nucleotide double helix	*holds genetic info
	RNA	mRNA	↓	A, U, G, C	* carries ""
	ATP, ADP, AMP		C, H, N, O, P	○-◎-◎ *	Cellular Energy
Proteins	*Amino Acids*	Glycine	C, H, N, O	*	* genetic expression
	Polypeptides	- eye color - Amylase		*	* Enzymes
Lipids	*Fats*	- saturated - unsaturated	C, H, O	Long * Lines *	long term E
	Phospholipids	- butter oil			Cell membrane
	Steroids	hormones			

Made via Photosynthesis then Synthesis

Dehydration Synthesis

Protein Synthesis

DNA replication

4. Explain the process of meiosis: Meiosis occurs in the gonads of organisms and produces haploid, genetically unique, sex cells. The phases:

Prophase I – crossing over | Nuc. Envelope disappears

Metaphase I – Homologous Pairs line up

Anaphase I – pulled apart

Telophase I – PINCH

P II -

M II – Sister chromatids line up

A II

T II

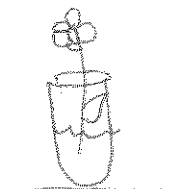
5. Design a scientific experiment (making sure to follow all steps of the scientific method)

Hypothesis: If aspirin is given to a plant then it will live longer.

Independent var.: aspirin

dependent var.: How long the plant lives

Data collection =



CONTROL

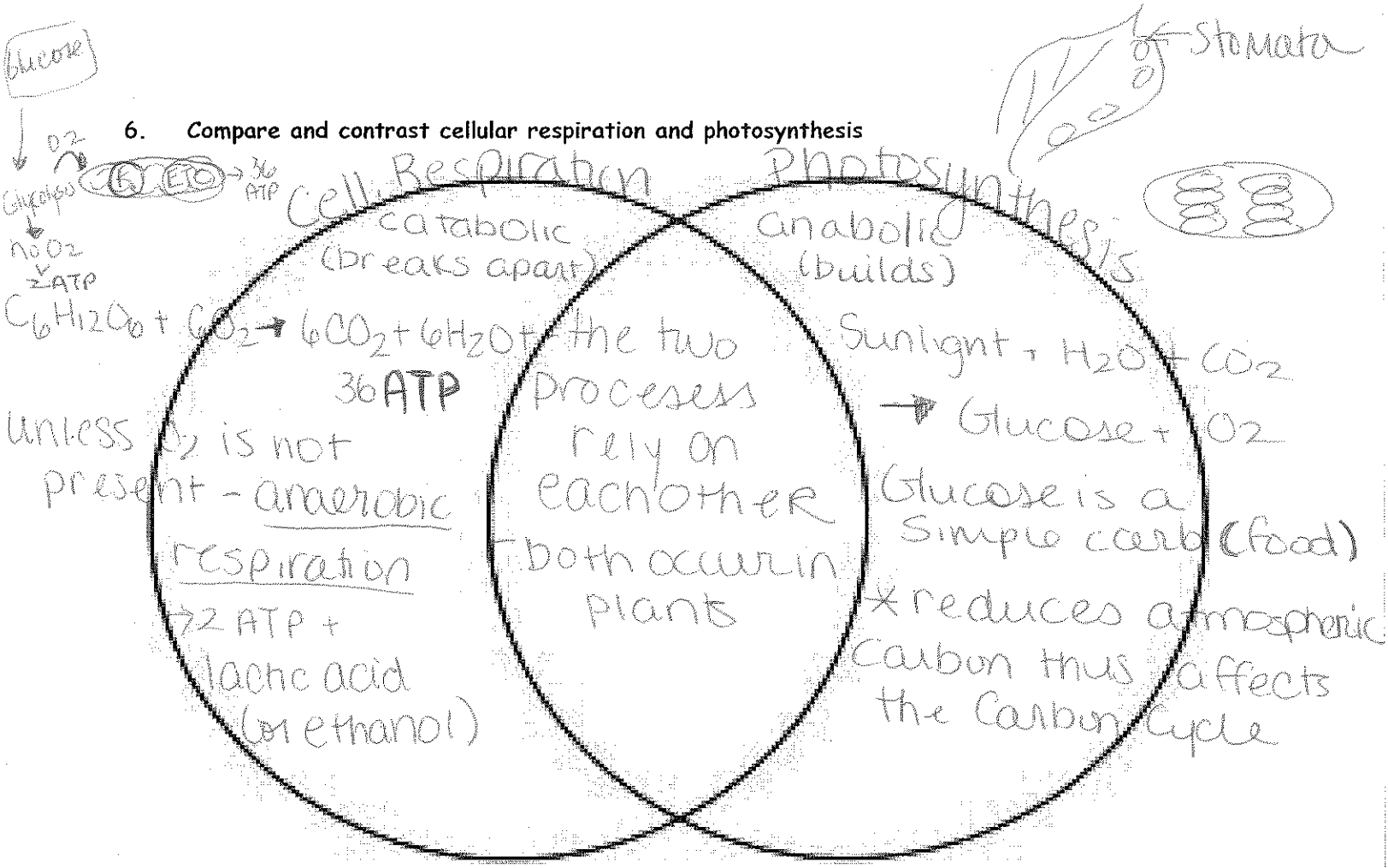
ASPIRIN

EXPT Group

Procedure

CONCLUSION = The data supports / does not support the hypothesis, ...

6. **Compare and contrast cellular respiration and photosynthesis**



7. **Explain how an environmental change can result in natural selection: ex. Peppered Moth or Darwins Finch Example. Use the following in your answer: Variation, Adaptation, Environment, Survival of the Fit, offspring**

Species evolve over time (many generations)

INDIVIDUALS DO NOT

- Variation in a species exists
- Environmental change
- Some individuals are better suited for the environment (have adaptations)
- Individuals with adaptations live to reproduce and pass on traits to offspring
- over many generations the individuals that make up the population will have inherited the adaptation

Osmosis: Movement of H_2O High to low [ ] until equilibrium

8. **What happens when you drop tap water into your eyes? Explain using your knowledge of tonicity.**

Eyes - body cells - are in a slightly salty solution

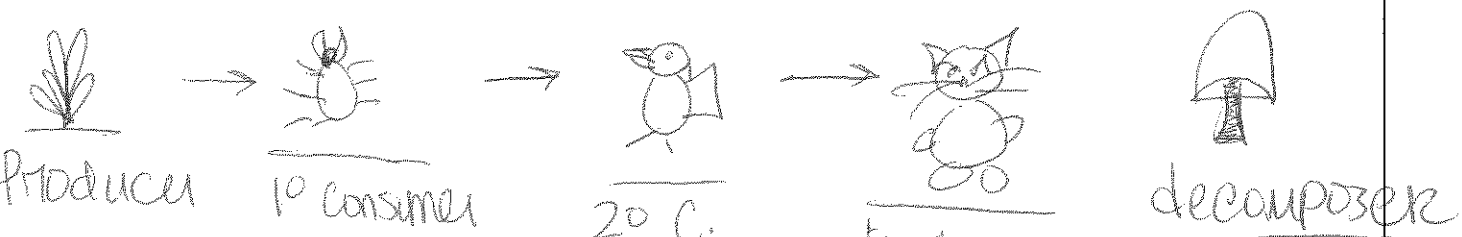
therefore in order to keep equilibrium it would be impt. to add an isotonic solution to the body

9. **Explain how the extinction of a plant or animal can disrupt an ecosystem**

If a species becomes extinct it can drastically affect the other organisms in the ecosystem.

(predator - prey relationships & other symbiotic relationships) - would all be changed.

10. **Give an example of a food chain and explain the transfer of energy through the food chain**



Ultimate Source of E = Sun

only 10% of Energy is passed between each trophic level

BioMagnification: Concentration of toxins is highest at higer trophic levels